## Abstract

The back surface of a semiconductor crystal substrate 102 which has a thickness of about 150μm and is made of undoped GaN bulk crystal consists of a polished plane 102a which is flattened through dry-etching and a grinded plane 102b which is formed in a taper shape and is flattened through dry-etching. On about 10nm in thickness of GaN n-type clad layer (low carrier concentration layer) 104, about 2nm in thickness of $Al_{0.005}In_{0.045}Ga_{0.95}N$ well layer 51 and about 18nm in thickness of $Al_{0.12}Ga_{0.88}N$ barrier layer 52 are deposited alternately as an active layer 105 which emits ultraviolet light and has MQW structure comprising 5 layers in total. Before forming a negative electrode (n-electrode c) on the polished plane of the semiconductor substrate a, the polished plane is dry-etched.